AMENDMENTS TO THE SPECIFICATION:

Please replace the following numbered paragraphs with the following rewritten paragraphs:

[00023] Referring to Figs. 2 through 5 the vibration isolation system 10 includes a housing 20 containing a MRF 26, field generation system 28 for controlling the distribution of the MRF 26 within the housing 20, a drive system 30 for driving an enclosed chamber 22 about the rotational axis of the rotor shaft 4, and a power generator power system 60 for powering the field generation system 28 and drive system 30. More specifically, the housing 20 defines the enclosed chamber 22 for containing the MRF 26, which partially fills the chamber 22. The drive system 30 for distributing the MRF 26 within the chamber 22 includes: a field generation system 28 capable of producing an electromagnetic field within the chamber 22, a electric motor 34 for displacing the MRF 26 within chamber, and a control system 40. In the preferred embodiment, the field generation system 28 includes a multiple of electromagnets 32 disposed about the periphery of the chamber 22 including at least one electromagnet ~~36~~ 32 disposed externally of the chamber 22 for effecting MRF flow in a direction opposing the rotational direction of the housing 20. The field generation system 28 and the drive system 30 provides a selective build-up or collection of MRF 26 in a desired location within the chamber 22 (Figures 3A-3C). The control system 40 selectively varies the flux of the electromagnetic field generated by the multiple of electromagnets 32 while additionally controlling the drive system 30. More specifically, the multiple electromagnets 32 produce the magnetic field within or about the chamber 22 in response to flux field signals 48s issued by the control system 40. The flux field signals 48s are indicative of strength and phase of the electromagnetic flux field, which may be varied to establish and/or alter the azimuthally varying viscosity of the MRF 26. Further, drive control signals 44s are issued to the drive system 30 for varying the speed and phase of the chamber 22 within the housing 20.

[00027] The electric motor 34 independently drives the chamber 22 and MRF 26 about the axis of rotation 6 of the main rotor shaft 4. In the preferred embodiment, the drive system 30 includes an electric motor 34 for driving the chamber 22. The drive system 30 is responsive to

control signals issued by the control system 40. More specifically, the control system 40 includes: a speed sensor 46 for obtaining input speed signals 46s indicative of the rotational speed 1P of the main rotor shaft 4, and a signal amplifier 44, responsive to the input speed signals 46s, for issuing control signals 44s to the drive system 30. The input speed signal 46s and the electrical power signals 60s are transmitted from a stationary system such as a fuselage to the rotating counterparts ~~and 60s respectively~~ by a slip ring 54.

[00031] In operation, the MRF 26 is driven at a rotational speed greater than the rotational speed of the main rotor system 2 and appropriately positioned to yield a load vector P_{10} (Figure 3A) which is equal and opposite to the vibration load vector P2 produced by the main rotor system 2. This counteracting load vector P_{10} can be viewed as a vector which attempts to cancel or null the displacement of the rotor shaft 4. Inasmuch as the drive system 30 is mounted directly to the rotating shaft 4 of the main rotor system 2, the drive system 30 need only drive the chamber 22 at three additional revolutions per cycle (for each revolution of the rotor system) in the direction of rotation of the main rotor system 2 to achieve the desired 4P operating frequency for a 4 bladed rotor. That is, since the MRF 26 is, in the rotating reference system, driven at one revolution per cycle by the main rotor system 2 itself, the drive system 30 need only augment the rotational speed 1P of the main rotor system 2 by 3P, provided that the augmentation is in the same rotational direction, to achieve the necessary 4P (computed by 1P+3P = 4P) frequency relative to the stationary reference system. Alternatively, the augmented rotation can be opposite to the rotor speed 1P. For example the drive system 30 can augment the rotational speed 1P by rotating the chamber 22 at 5P in the opposite direction to achieve the necessary 4P (computed by 1P-5P = -4P) frequency in the stationary reference system. For any number of rotor blades, the absolute frequency to suppress is NP where N is the number of rotor blades. The augmentation speed of the chamber 22 produced by the drive system 30 is then (N-1)P in the direction of the rotor speed or (N+1)P in the opposite direction.

[00032] The embodiment of Figure 5 has the advantage of not requiring an electrical slip ring 54 to position the eccentric mass that provides the anti-vibration force. In this embodiment,

the electro-magnets 32 do not rotate with the chamber 22 (Figure 4), but are stationary. The electric power coils 33 are also stationary. The housing 20 forms an enclosed chamber 22. The MRF 26, in this example, rotates about the axis of rotation 6 of the shaft 4. In this case the shaft 4 and the housing 20 rotate together and in the counterclockwise direction at a frequency of 3P, for a 4 bladed rotor, relative to the main rotor system 2. The rotation of the shaft 4 about the axis of rotation 6 at a frequency of 3P is achieved with an electric motor or other means. The electric power to the power coils 33 is switched to the successive electromagnets ~~32'~~ 32 in the counterclockwise direction such that the magnet field rotates at the same rotational speed as the shaft 4 and chamber 22. As a result, the maximum magnetic field rotates at the same rotational speed as the chamber 22 and is thus stationary relative to the housing 20. As a consequence, the MRF 26 accumulates in the housing 20 at a point of the maximum magnet field. In this manner, the bulk of the MRF 26 forms an eccentric mass according to the commanded phase of the magnetic field position. The resulting eccentric mass causes an eccentric centrifugal force that can be adjusted to suppress the unwanted ambient force.

[00033] Lessening or increasing the amount electrical current applied to the power coils 33 varies the amount of MRF 26 that accumulates at a chosen angular location in the housing 22. In an extreme case, the current can be zero or very low. This condition will cause the MRF 26 to be distributed uniformly around the periphery of the chamber 22 (Figure 3C). As the amount of current sequentially applied to the power coils 33 of the electromagnets ~~32'~~ 32 is increased, the amount of MRF 26 that accumulates at the chosen azimuth phase in the housing 22 will increase, thus causing a correspondingly large eccentric force to suppress an unwanted ambient force.